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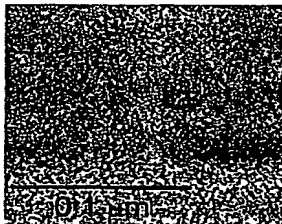
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(54) Title: **OPTIMIZED EXPRESSION OF HPV 58 L1 IN YEAST**

Transmission EM of VLPs Composed of HPV 58 L1 R Protein Molecules



(57) Abstract: Synthetic DNA molecules encoding the HPV58 L1 protein are provided. Specifically, the present invention provides polynucleotides encoding HPV58 L1 protein, wherein said polynucleotides are codon-optimized for high level expression in a yeast cell. The synthetic molecules may be used to produce HPV58 virus-like particles (VLPs), and to produce vaccines and pharmaceutical compositions comprising the HPV58 VLPs. The vaccines of the present invention provide effective immunoprophylaxis against papillomavirus infection through neutralizing antibody and cell-mediated immunity and are also useful for treatment of existing HPV infections.